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| **Key vocabulary** | |
| **thermal insulator** | Does not allow heat to pass through it easily. |
| **thermal conductor** | Allows heat to pass through it easily. |
| **electrical insulator** | Does not allow electricity to pass through it. |
| **electrical conductor** | Allows electricity to pass through it. |
| **dissolve** | A solid that completely mixes in with a liquid and cannot be seen. |
| **solution** | A mixture of a liquid with a dissolved solid or gas. |
| **soluble** | Solids and gases that dissolve in liquids. |
| **insoluble** | Solids that do not dissolve in a liquid. |
| **sieve** | Separates solids of different sizes. |
| **filter** | Separates an insoluble solid that is mixed in a liquid. |
| **evaporation** | Separates a soluble solid and a liquid. |
| **reversible change** | Changes that can be switched back and are not permanent. E.g. dissolving, melting, freezing |
| **non-reversible change** | Changes that can not be reversed back to their original state. E.g. burning, rusting |

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| **Materials can be grouped together based on their properties. For example:** |
| * hardness * solubility * transparency * thermal conductivity * electrical conductivity * response to magnets |

**Properties and changes of materials – Year 5**

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| **Significant scientists** | |
| **Spencer Silver**  *(born 1941)* | Spencer Silver is an American scientist who together with Arthur Fry was the inventor of Post-it notes in 1974. At the time, he was working to develop new classes of adhesives. |
| **Joe Keddie**  Joe Keddie is a professor of Soft Matter Physics at the University of Surrey. He is interested in the fundamental processes of soft matter, especially polymer thin films and nanoparticles. | |

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| **Reversible changes** | | |
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| melting    freezing | | |
| evaporating | | condensing |
| **Separating materials** | | |
| **Sieving**  separates the stones and twigs from the soil. |  | |
| **Filtering** separates the sand from the mixture. |  | |
| **Evaporating** separates the dissolved salt from the water. |  | |

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| **Non-reversible changes -** these  result in the formation of new materials | |
| **Burning** |  |
| **Mixing vinegar and bicarbonate of soda** |  |
| **Rusting** |  |

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